

# Part 5

## Troubleshooting

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## 1. Normal Air Conditioner Phenomenon

1.1 When outdoor unit appears white vapor or water, the reasons is as follows:

- 1) The fan of outdoor unit stops to begin defrosting.
- 2) The electromagnet valve sends out the noise when the defrosting begins and ends.
- 3) There is sound like water flowing when running or off; and the noise enlarges after running for 3 minutes. This is the sound of refrigerant flowing or discharging water gathered by dehumidifying.

1.2 Outdoor units send out the noise of “pupu”, for temperature changes to heat exchanger heat expanded or cool compact.

1.3 Indoor units send out odor smell, because it absorbs the smell of house, furniture or smoking.

1.4 The running light of indoor unit flickers, the reasons are generally as follows:

- 1) Power supply ever failed during running period.
- 2) For 1-to-several, the following induces the director lighting and the operation stopping
  - ① Other indoor units running at heating mode induce to this indoor unit cannot run at cooling mode
  - ② Setting mode conflicts with the fixed mode.
  - ③ Stop fan to prevent discharging cool air.

1.5 The “no priority” or “waiting” director light of operation board lights.

1.6 Auto running or stopping for the timer wrong operation.

1.7 Cannot run, the reasons are as follows:

- ① Power is off.
- ② Manual switch is pulled to off side.
- ③ Fuse is cut.
- ④ Protect device starts, at the same time running director lights.
- ⑤ Timer’s setting time is over, at the time running director lights.

1.8 Heating or cooling is inefficient.

- ① Filter is block by duct or rubbish.
- ② The place of air deflector is unfit.
- ③ Fan mode is “slight” or running mode is “fan”.
- ④ Setting temperature is unfit.
- ⑤ Simultaneously choose the heating and cooling mode, at the time the “no priority” or “waiting”

director light of panel lights.

## 2. Air Conditioner Protection in Common

2.1 Compressor protection.

When power is on, or machine stops then restarts right away, outdoor unit will run in 3 minutes to protect the compressor from too frequent starts and stops.

2.2 When the protection device functions, running stops. Refer to the following:

- ① forced to start but not possess the start article, and display light lights.
- ② When cooling running, inlet and outlet of outdoor unit are blocked, outside strong air blows into outdoor unit’s outlet.
- ③ When heating running, dust adheres to air filter to block inlet or outlet of outdoor unit.

Note: when protecting, please cut manual power switch. After checking the reason and solving it, restart.

2.3 Power fails.

- ① If power supply fails while machine is running normally, system will record this.
- ② When the machine is powered on again, the running light of wire controller would flash to inform user about this.
- ③ Press the on/off key of wire controller to confirm this before restart the system.

Note: When running, if system takes place mistaken operation or lighter, please pull down the power

supply switch to cut it off. Before restarting machines, please press the on/off key again as above.

### 3. Malfunction Code and Troubleshooting

If there is phenomenon as follows, please stop air conditioner running and cut power supply and refer to the following. However, if the problem insists, please contact the customer service center of Midea commercial air conditioner company, and offer machine's model and detailed malfunction.

#### For 8-16HP

Code	Malfunction or protection	remark
E0	Reserved	
E1	Phase sequence malfunction	
E2	Communication between prime outdoor unit and indoor units	
E3	Reserved	
E4	Ambient temp. sensor malfunction	
E5	Reserved	
E6	Reserved	
E7	Reserved	
E8	Reserved	
E9	Voltage malfunction	
H0	Communication malfunction between IR341 and 780034	
H1	Communication malfunction between 0537 and 780034	
H2	Reserved	
H3	Reserved	
H4	There are 3 times P6 protection In 30 minutes.	Refer to P6 for repair
H5	There are 3 times P2 protection In 30 minutes.	Refer to P2 for repair
H6	There are 3 times P4 protection In 100 minutes.	Refer to P4 for repair
H9	There are 3 times P9 protection In 30 minutes	Refer to P9 for repair
H7	Indoor unit quantities decreasing malfunction over 3 minutes	
P0	The sensor protection on the top of inv. compressor.	
P1	High pressure protection	
P2	Low pressure protection	
P3	Inv. compressor over current protection	
P4	Discharge temp. sensor protection	
P5	Pipe temp. sensor protection	
P6	Module protection	
P7	Fixed 1 current protection	
P8	Fixed 2 current protection	
P9	Fan module protection	
L0	Module malfunction	
L1	DC generatrix low voltage protection	
L2	DC generatrix high voltage protection	
L3	Reserved	
L4	MCE malfunction/simultaneously/cycle loop	
L5	Zero speed protection	
L6	Reserved	
L7	Wrong phase protection	

L8	Speed difference >15Hz protection between the front and the back clock	
L9	Speed difference >15Hz protection between the real and the setting speed	

**18-20HP**

Code	Malfunction or protection	remark
E0	Outdoor unit communication error	Display in auxiliary unit only
E1	Phase sequence error	
E2	Communication error between indoor unit and main unit	
E3	Reserve	
E4	Outdoor temp sensor error	
E5	Reserve	
E6	Reserve	
E7	Reserve	
E8	Outdoor unit address error	
E9	Voltage error	
H0	Communication error between DSP and 780034	
H1	Communication error between 0537 and 780034	
H2	Outdoor unit qty. decrease error	Display in main unit only
H3	Outdoor unit qty. increase error	Display in main unit only
H4	Three times of P6 protect in 30 minutes	
H5	Three times of P2 protect in 30 minutes	Must be re-powered on for the recovery
H6	Three times of P4 protect in 100 minutes	Must be re-powered on for the recovery
H7	Qty of indoor unit decreases	
H8	$P_c \leq 0.3\text{MPa}$	
P0	Inverter top temp. protection	
P1	High-pressure protection	
P2	Low-pressure protection	
P3	Compressor overcurrent protection	
P4	Compressor discharge temp. protection	
P5	Outdoor condenser high temp. protection	
P6	Inverter module protection	
P7	Current protection, No.1 fixed compressor	
P8	Current protection, No.2 fixed compressor	
P9	Current protection, No.3 fixed compressor	
L0	Module error	Display during spot inspecting
L1	DC busbar low voltage protection	Display during spot inspecting
L2	DC busbar high voltage protection	Display during spot inspecting
L3	Reserve	Display during spot inspecting
L4	MCE error/ synchronize/ closed loop	Display during spot inspecting
L5	Zero velocity protection	Display during spot inspecting
L6	Reserve	Display during spot inspecting
L7	Phase sequence error protection	Display during spot inspecting

L8	The speed difference between the previous time and the following time > 15Hz protection	Display during spot inspecting
L9	The speed difference between the setting speed and actual speed>15Hz protection	Display during spot inspecting

**For 30HP**

Code	Malfunction or protection	remark
E0	Outdoor unit communication error	Display in auxiliary unit only
E1	Phase squence error	
E2	Communication error between indoor unit and main unit	
E3	Reserve	
E4	Outdoor temp sensor error	
E5	Reserve	
E6	Reserve	
E7	Reserve	
E8	Outdoor unit address error	
E9	Voltage error	
H0	Communication error between DSP and 780034	
H1	Communication error between 0537 and 780034	
H2	Outdoor unit qty. decrease error	Display in main unit only
H3	Outdoor unit qty. increase error	Display in main unit only
H4	Three times of P6 protect in 30 minutes	
H5	Three times of P2 protect in 30 minutes	Must be re-powered on for the recovery
H6	Three times of P4 protect in 100 minutes	Must be re-powered on for the recovery
H7	Qty of indoor unit decreases	
H8	$P_c \leq 0.3\text{MPa}$	
H9	P9 protection occur 3 times within 30 minutes	
P0	Inverter top temp. protection	
P1	High-pressure protection	
P2	Low-pressure protection	
P3	Compressor overcurrent protection	
P4	Compressor discharge temp. protection	
P5	Outdoor condenser high temp. protection	
P6	Inverter module protection	
P9	Fan protection	
F1	Current protection, No.1 fixed compressor	
F2	Current protection, No.2 fixed compressor	
F3	Current protection, No.3 fixed compressor	
F4	Current protection, No.4 fixed compressor	
F5	Current protection, No.5 fixed compressor	
L0	Module error	Display during spot inspecting
L1	DC busbar low voltage protection	Display during spot inspecting
L2	DC busbar high voltage protection	Display during spot inspecting
L3	Reserve	Display during

		spot inspecting
L4	MCE error/ synchronize/ closed loop	Display during spot inspecting
L5	Zero velocity protection	Display during spot inspecting
L6	Reserve	Display during spot inspecting
L7	Phase squence error protection	Display during spot inspecting
L8	The speed difference between the previous time and the following time > 15Hz protection	Display during spot inspecting
L9	The speed difference between the setting speed and actual speed>15Hz protection	Display during spot inspecting

## 3.2 "E1": Phase sequence malfunction

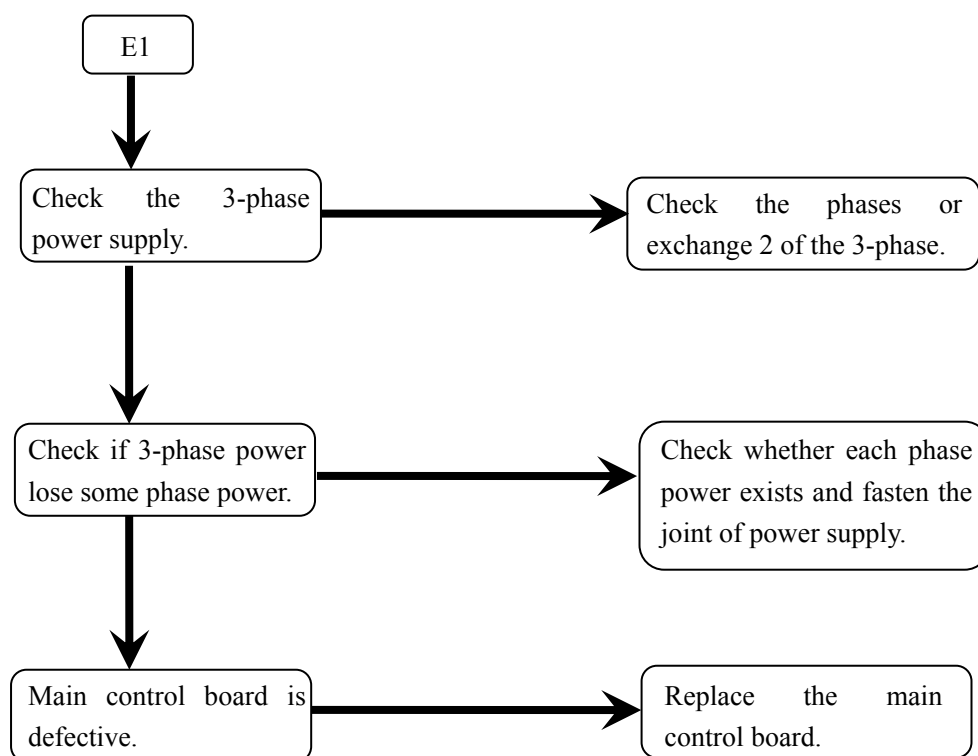
Outdoor Unit  
Display

**E1**

<b>Error Explanation</b>	A, B, C terminal of three-phase power supply correspond with U,V,W of the compressor. The compressor could work normally only when they make good matches.
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<b>Supposed Causes</b>	<p>1. Phase sequence of the electricity supply does not match.</p> <p>2. In most circumstance, the reason is lack of power phase.</p>
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### Troubleshooting



### 3.3 "E2": Communication failure between master ODU and IDU

Outdoor Unit  
Display

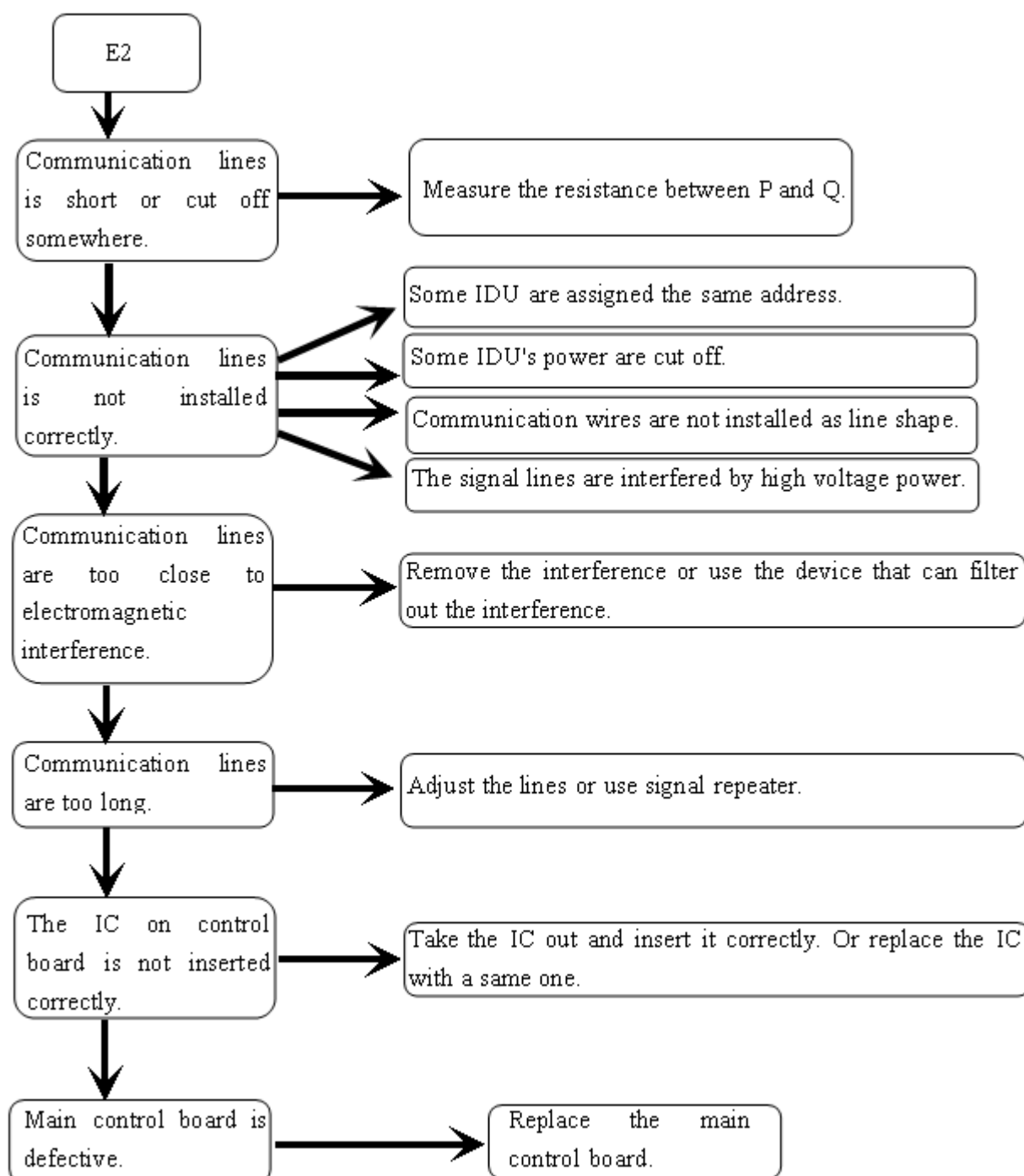
**E2** (Master unit displays only)

<p><b>Error Explanation</b></p>	<ol style="list-style-type: none"> <li>1. Timer LED of indoor unit flashes quickly.</li> <li>2. The number of indoor unit that displayed on outdoor unit changes .</li> <li>3. Some of the indoor unit do not work, etc.</li> </ol>
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<p><b>Supposed Causes</b></p>	<ol style="list-style-type: none"> <li>1. IDU have the same address or the net address is set incorrectly.</li> <li>2. The signal lines do not work well.</li> <li>3. PQE bus is conducted somewhere.</li> </ol>
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Troubleshooting





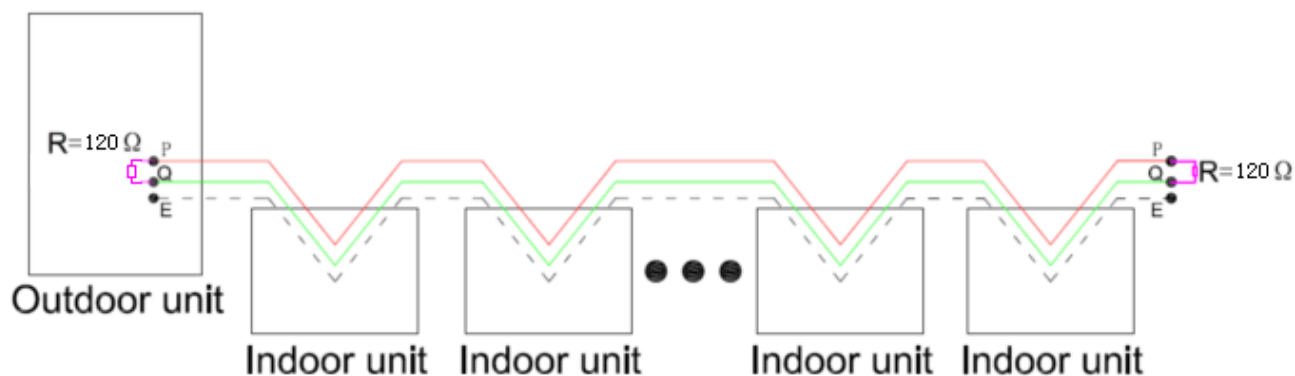
**Remarks:**

1. Press indoor unit's receiver button for 5 seconds, the indoor unit's communication address code is displayed; press it for 10 seconds, power code is displayed. Check every unit's address code. Codes are as follows:

Director light	Running	Timer	Fan/defend cold fan	Warning
Code	8	4	2	1

Address	0	1	2	3	4	5	6	7	8	9
Capacity (×100W)	22	28	36	45	56	71	80	90	112	140
HP	0.8	1.0	1.2	1.6	2.0	2.5	3.0	3.2	4.0	5.0

2. If the signal is weak, a 120Ω resistor should be installed at the end of P and Q line of indoor units, and another 120Ω resistor should be installed at the end of P and Q of outdoor units. Installation refers to the picture following:



### 3.4 "E4": Ambient temp. sensor malfunction

Outdoor Unit  
Display

**E4**

Error ODU displays E4.

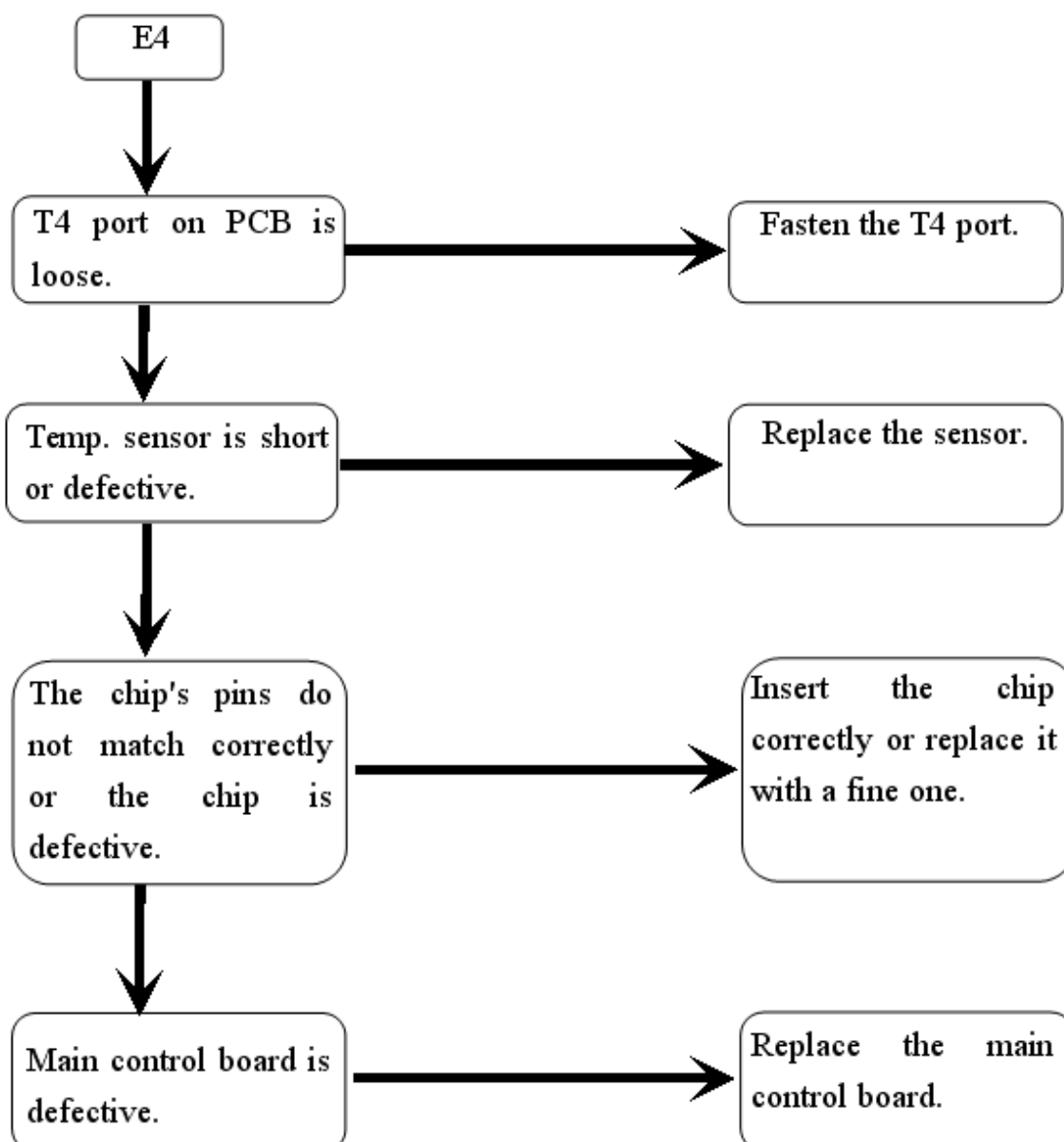
Explanation

Supposed

Causes

1. The sensor terminal is loose.
2. The sensor circuit is short or open.
3. The main control board's clamp diodes are short or open.

Troubleshooting



### 3.4 "E8": Outdoor unit address error

Outdoor Unit  
Display

**E8**

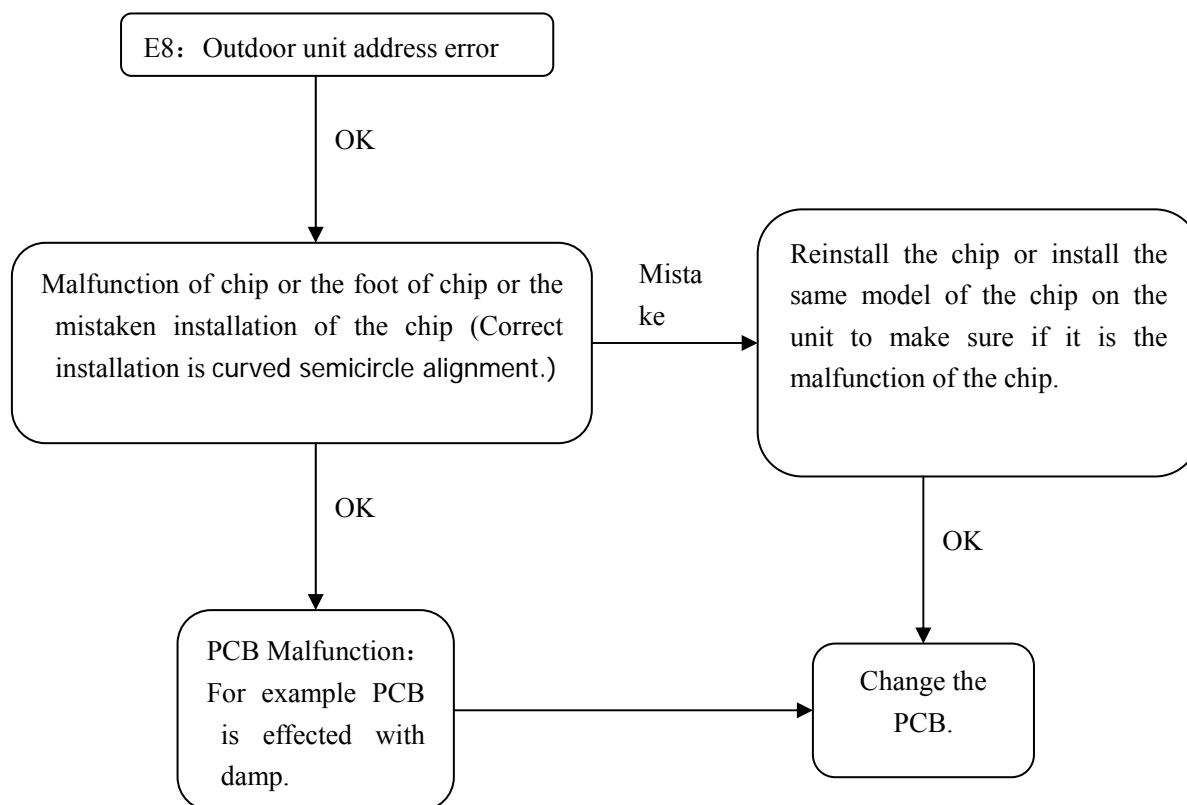
**Error** ODU displays E8.

**Explanation**

**Supposed  
Causes**

1. Malfunction of chip or the foot of chip or the mistaken installation of the chip .
2. PCB malfunction.

#### Troubleshooting



## 3.6 "E9": Voltage malfunction

Outdoor Unit  
Display

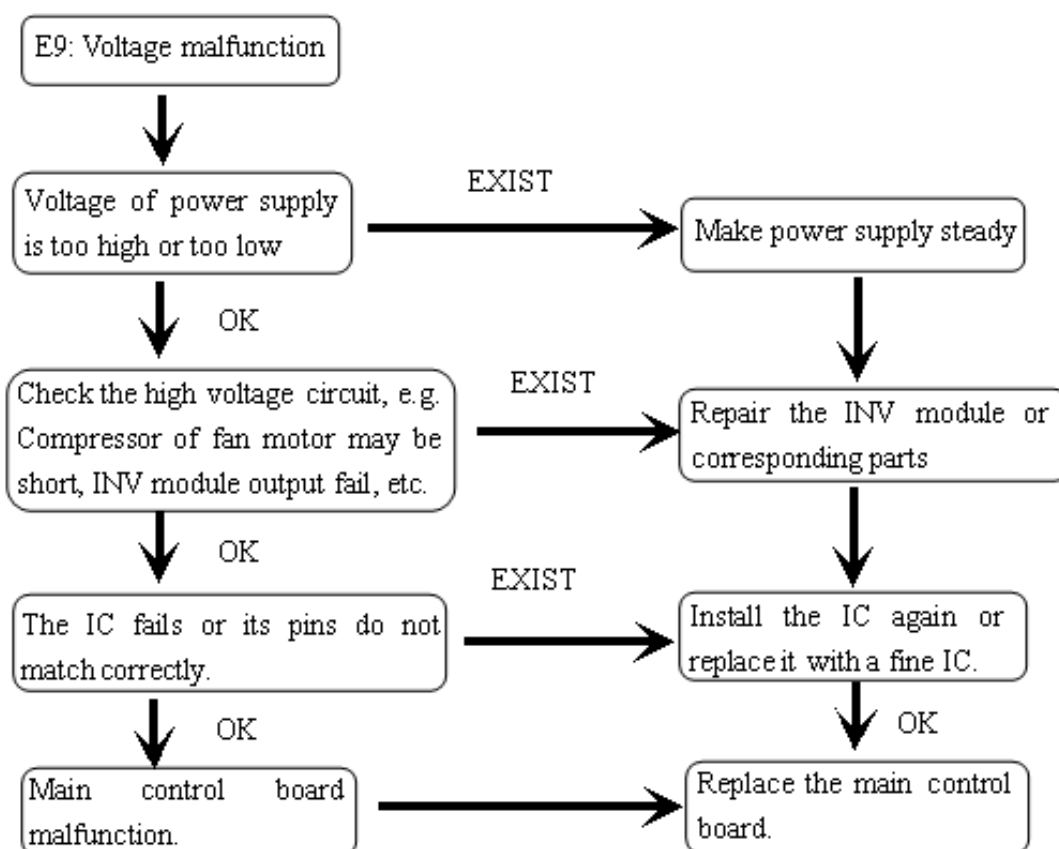
**E9**

**Error** ODU displays E9. All the ODU standby.  
**Explanation**

**Supposed Causes**

- 1.The voltage of power supply is too high or too low.
- 2.The voltage of power supply fluctuates.
- 3.The IC is loose or main board fails.

### Troubleshooting



## 3.7 "H0": Communication malfunction between DSP and 780034

Outdoor Unit  
Display

# H0

<b>Error Explanation</b>	DSP IC is used for providing running parameter to compressor. IC780034 send the system's parameter such as T3, T4, ODU power need, exhaust temp. etc. From which DSP IC calculates the compressor's frequency.
<b>Supposed Causes</b>	<ol style="list-style-type: none"> <li>1. The power supply of DSP IC fails to work normally.</li> <li>2. Defect of either the DSP or the 780034.</li> <li>3. Disconnection of the IC 780034 pins.</li> <li>4. Defect of main control board.</li> <li>5. Environmental interference.</li> </ol>
<b>Troubleshooting</b>	Normally the only way to deal with is to replace the main control board.

## 3.8 H1: Communication malfunction between IC 0537 and IC 780034

Outdoor Unit  
Display

**H1**

<b>Error Explanation</b>	For V4 and V3 series, error happens between IC 9177 and IC 780034. For V4+ series, error happens between IC 0537 and IC 780034.
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<b>Supposed Causes</b>	1. IC 9177 or IC 0537 or IC 780034 is defective. 2. Disconnection of the pins of IC 780034. 3. Environment interference.
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<b>Troubleshooting</b>	Normally the only way to deal with is to replace the main control board.
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## 3.10 "H7": Outdoor unit quantities decreasing malfunction

Outdoor Unit  
Display

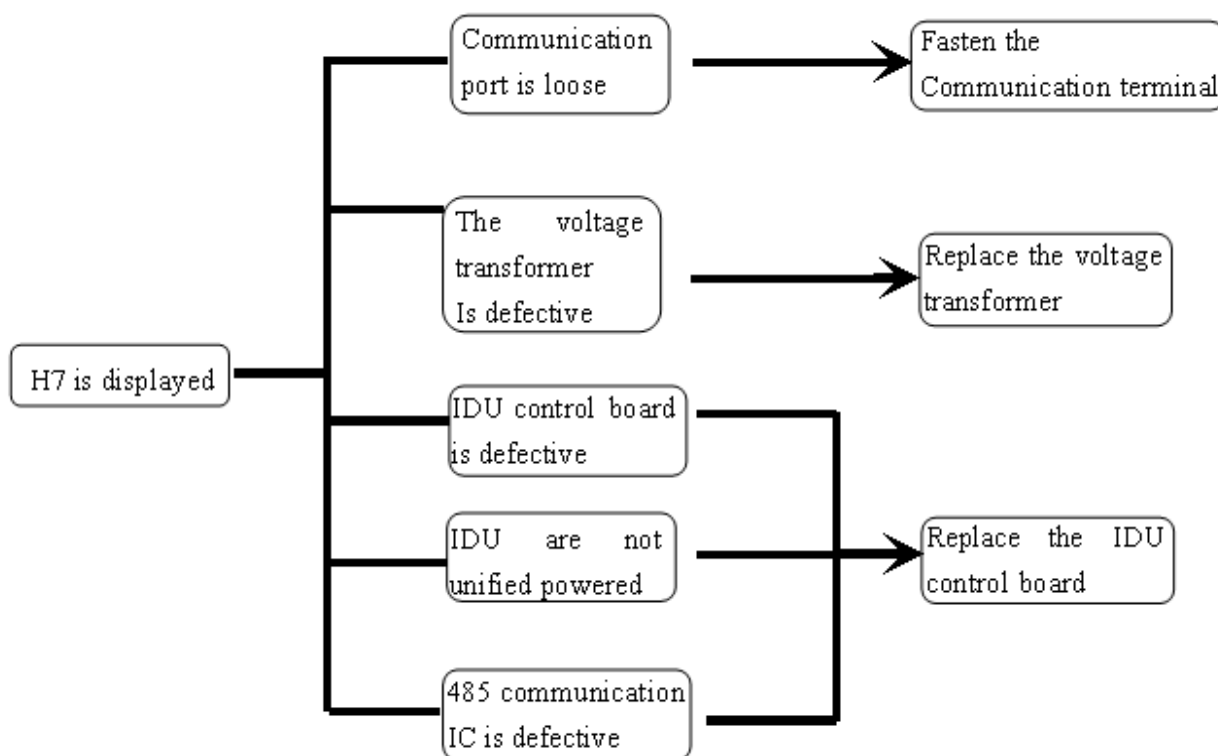
# H7

**Error** ODU displays H7. All the ODU standby.  
**Explanation**

**Supposed Causes**

1. The communication terminal of IDU is loose.
2. The voltage transformer of IDU is defective.
3. IDU installation is not standard, which are not unified powered.
4. The control board of IDU is defective.

**Troubleshooting**





## 3.11 "P0": The sensor protection on the top of inv. Compressor

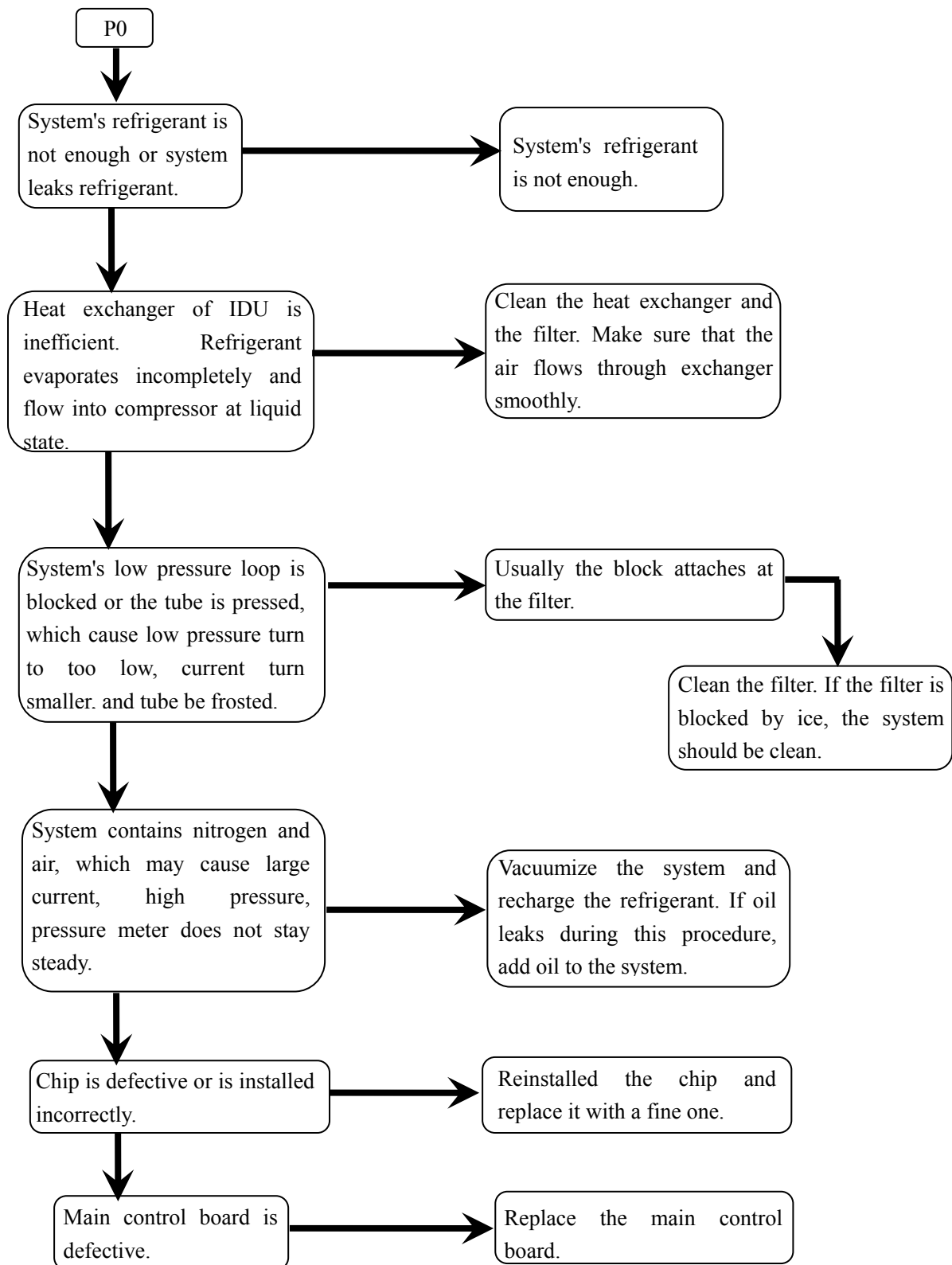
Outdoor Unit  
Display

**P0**

**Error** One ODU displays P0 and changes to protecting standby state.  
**Explanation**

**Supposed** 1. Refrigerant is not enough.  
**Causes** 2. Efficiency of outdoor heat exchange is low.  
3. Refrigerant does not loops smoothly  
4. Control board is defective

Troubleshooting



Remarks: When system appear 3 times P0 or P4 protection in 100 minutes, system will auto shut down and display H6 malfunction, which can recover only by restarting the machine. At this time, malfunction should be promptly treated to avoid further damage.

## 3.12 "P1": High pressure protection

Outdoor Unit  
Display

**P1**

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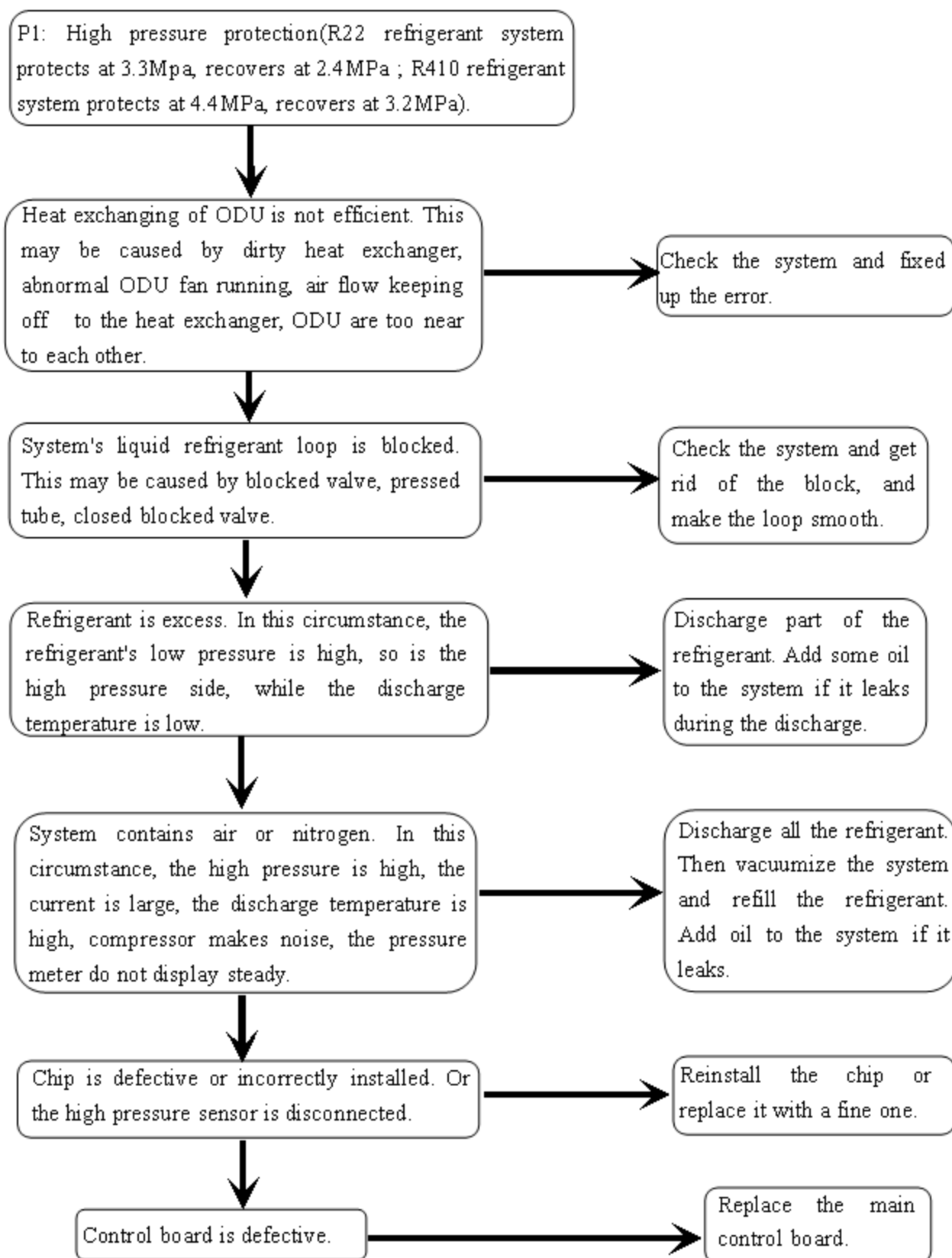
<b>Error</b>	One ODU displays P1 and changes to protecting standby state.
<b>Explanation</b>	

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<b>Supposed</b>	1. Refrigerant is excess.
<b>Causes</b>	2. Refrigerant does not loop smoothly.
	3. The refrigerant loop contains air.
	4. Control board is defective.

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**Troubleshooting**



### 3.13 "P2": Low pressure protection

Outdoor Unit  
Display

**P2**

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Error	One ODU displays P2 and changes to protecting standby state.
Explanation	

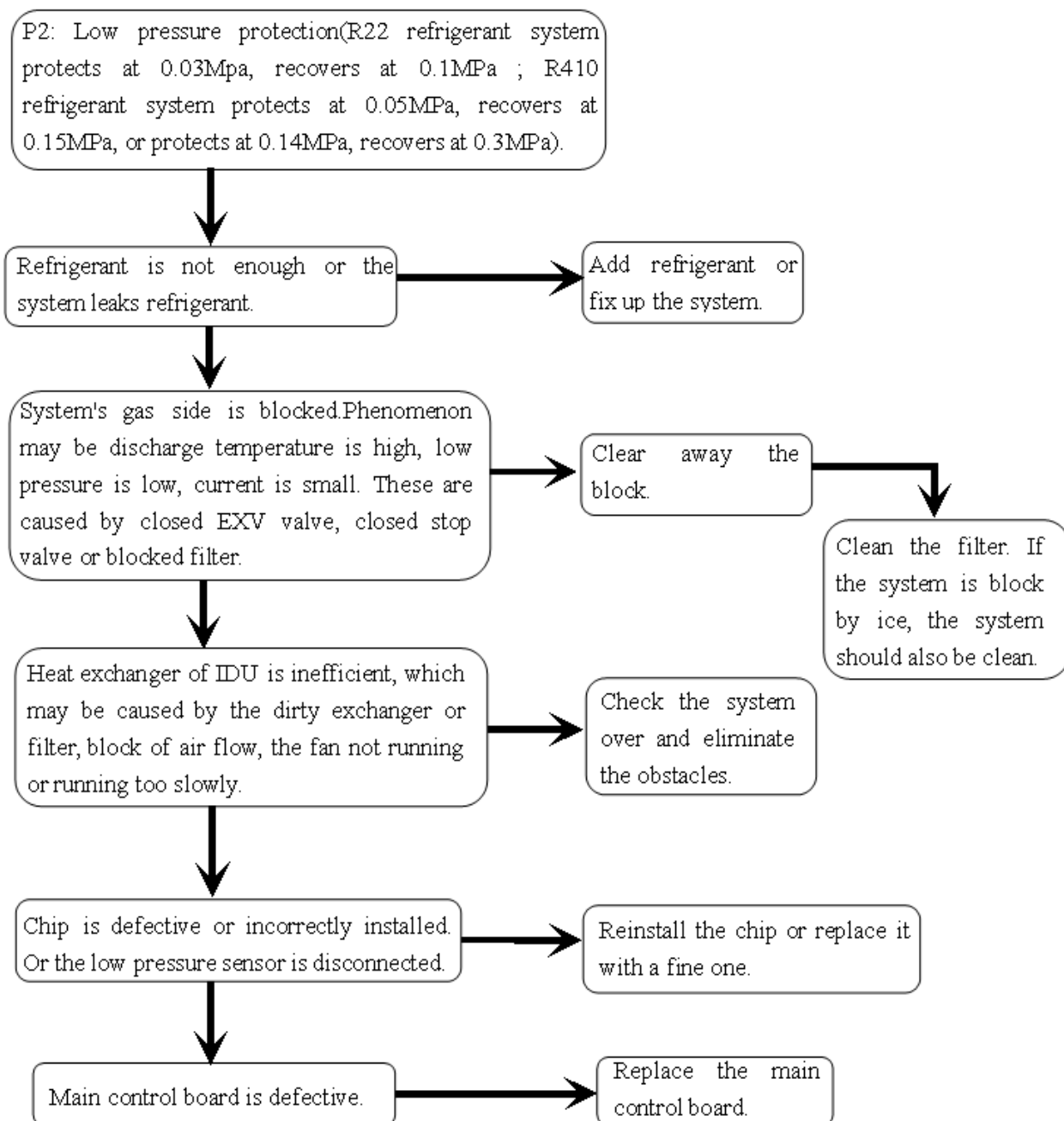
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Supposed	1. Refrigerant is not enough.
Causes	2. Refrigerant does not loop smoothly.
	3. Efficiency of indoor heat exchange is low.
	4. Control board is not defective.

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Troubleshooting



Remarks: When system appear 3 times P2 protection in 30 minutes, system will auto shut down and display H5 malfunction, which can recover only by restarting the machine . Malfunction should be promptly treated to avoid further damage.

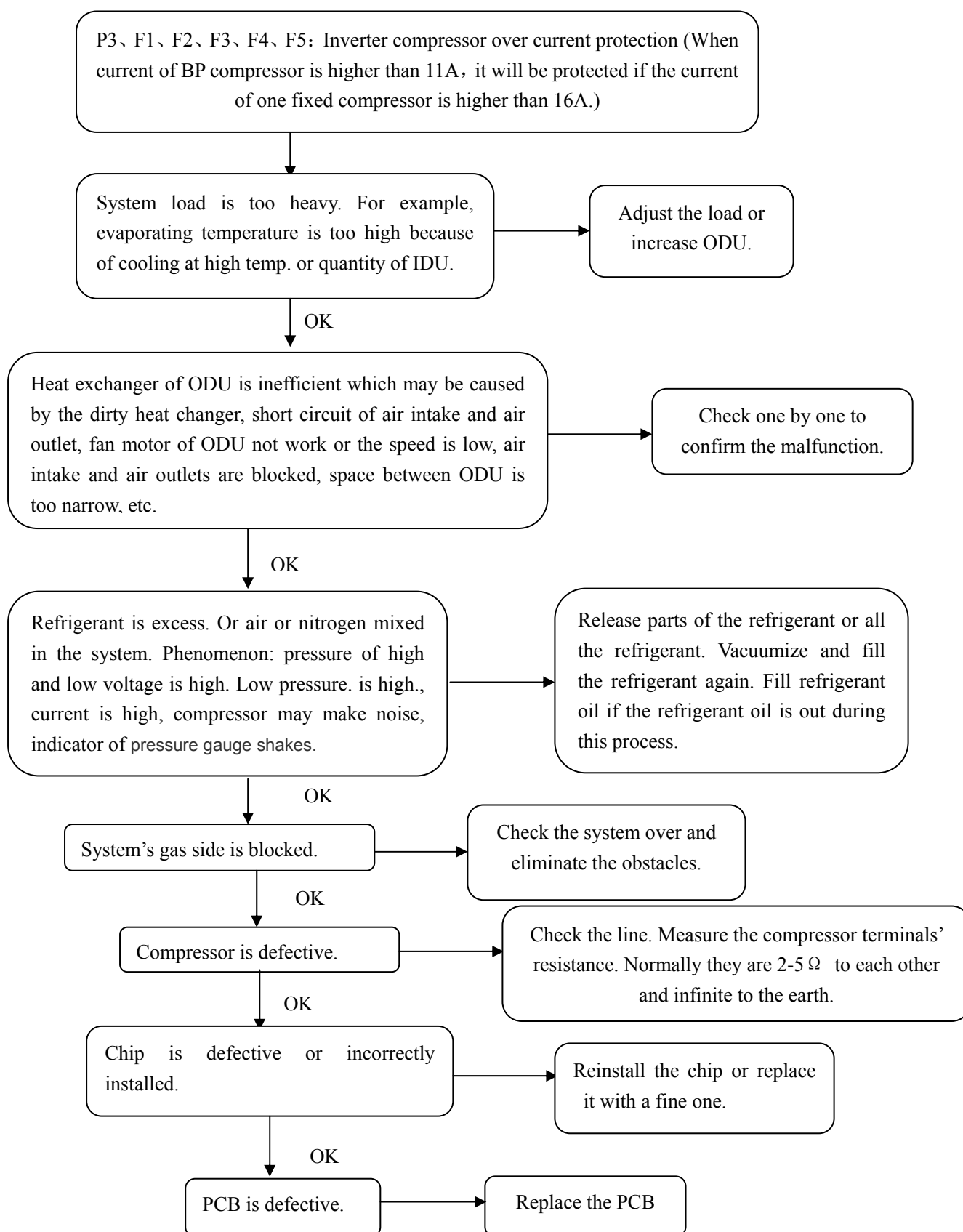
## 3.14 "P3""F1""F2""F3""F4""F5": **Inv. compressor over current protection**

Outdoor Unit Display	<b>P3,F1,F2,F3,F4 ,F5</b>
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Error Explanation	ODU displays P3,F1,F2,F3,F4,F5.
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Supposed Causes	<ol style="list-style-type: none"> <li>1. Load on ODU is excess.</li> <li>2. Outdoor heat exchanging is not efficient.</li> <li>3. Refrigerant is excess.</li> <li>4. Compressor or its circuit is defective.</li> <li>5. Control board is defective.</li> </ol>
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Troubleshooting	
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## 3.15 "P4": Discharge temp. sensor protection

Outdoor Unit  
Display

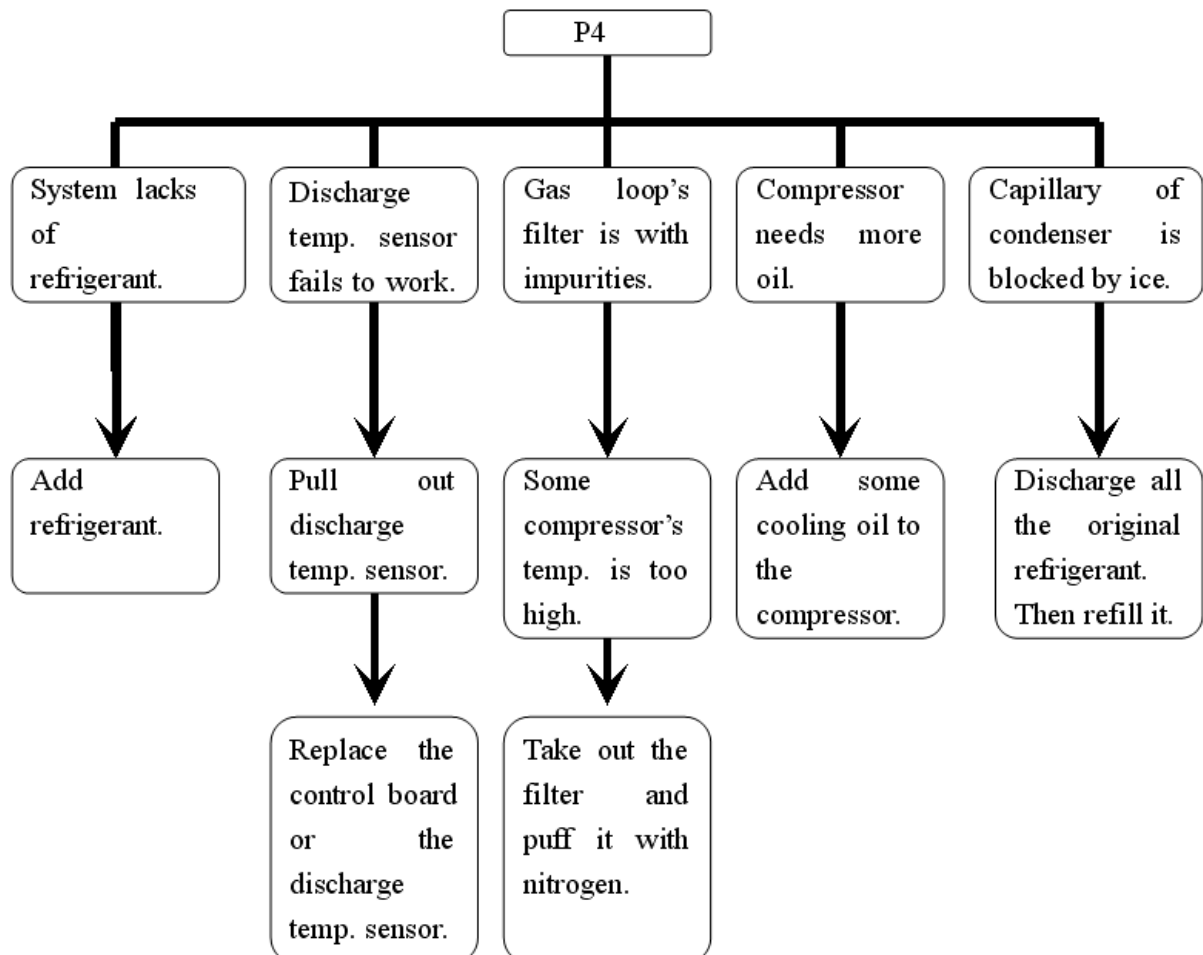
**P4**

**Error** One ODU displays P4 and changes to protecting standby state.  
**Explanation**

**Supposed Causes**

1. Refrigerant is not enough.
2. Refrigerant does not loop smoothly.
3. Compressor needs more oil.
4. Control board is defective

### Troubleshooting



## 3.16 "P5": Pipe temp. sensor protection

Outdoor Unit  
Display

**P5**

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Error	One ODU displays P4 and changes to protecting standby state.
Explanation	

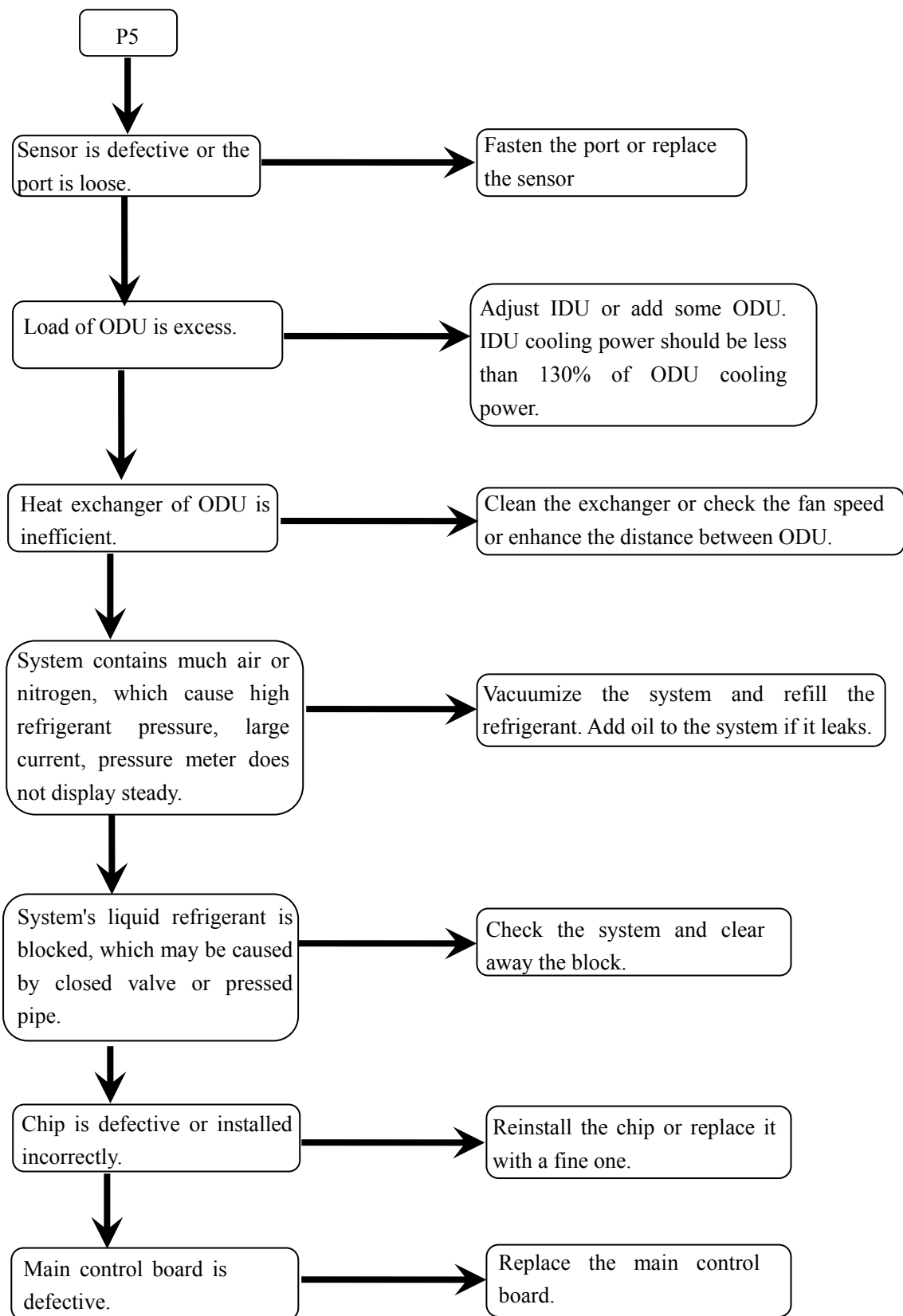
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Supposed	1. System's load is excess.
Causes	2. Heat exchanging is not efficient.
	3. Liquid refrigerant is blocked.
	4. Refrigerant is mixed with impurities.

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Troubleshooting



## 3.17 "P6": Module protection

Outdoor Unit  
Display

**P6**

**Error** ODU displays P6.

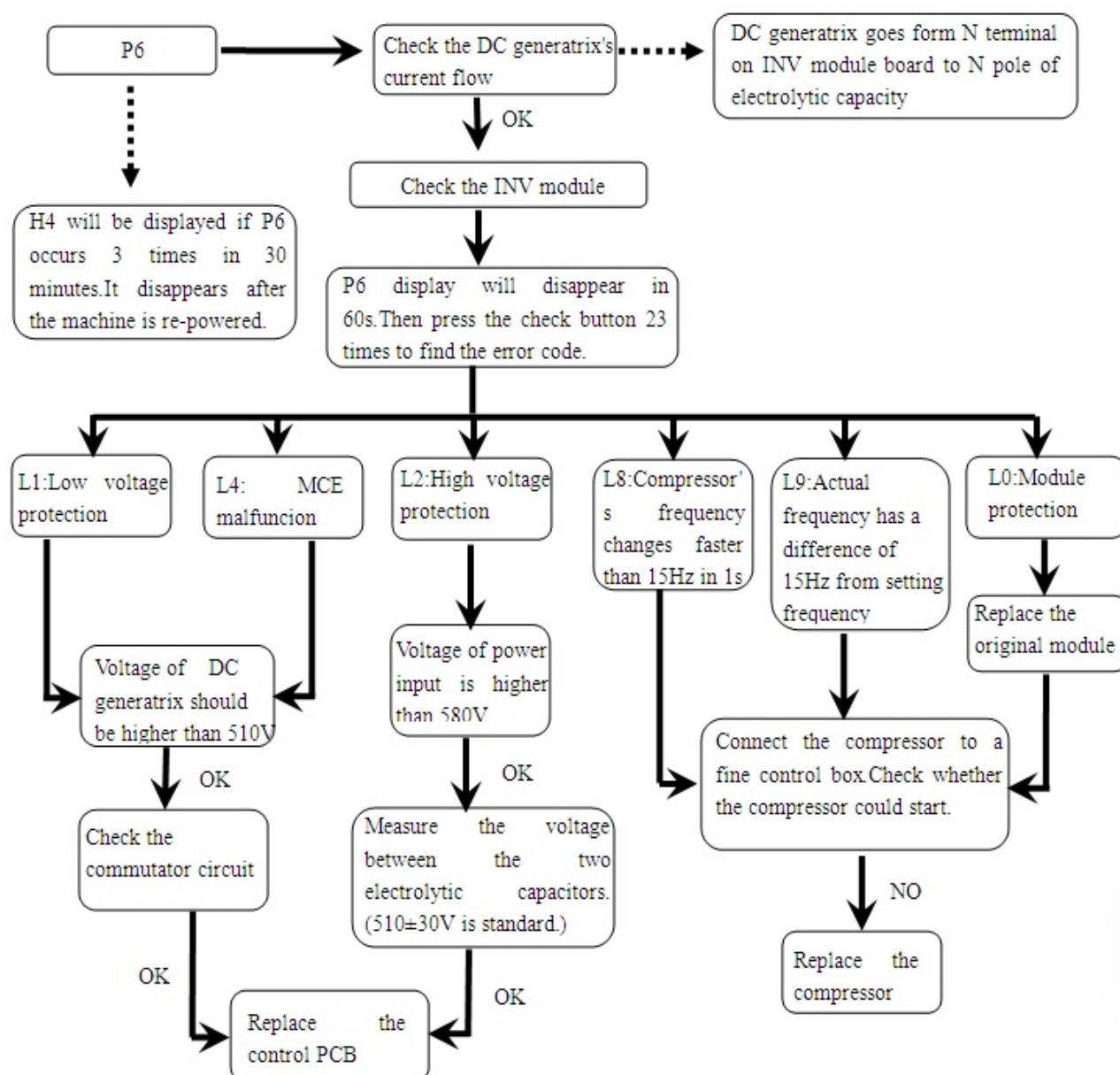
**Explanation**

**Supposed**

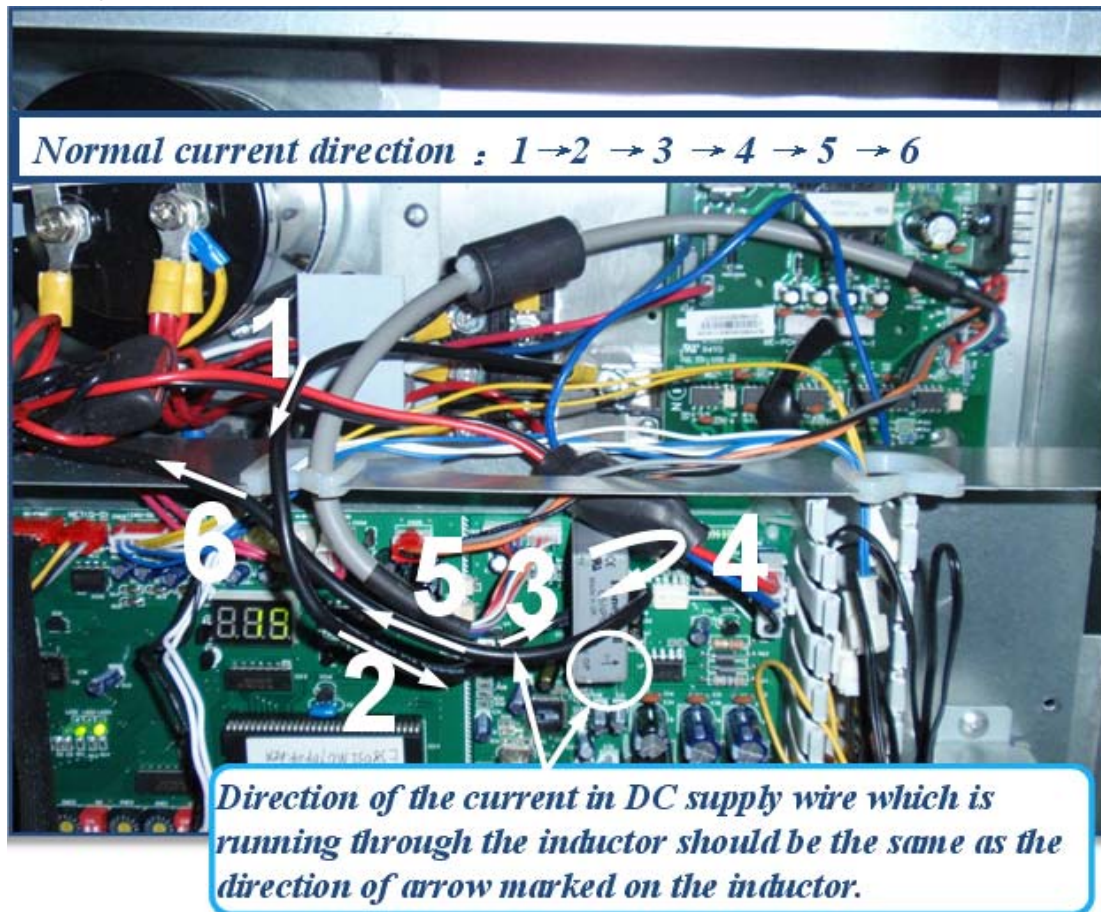
**Causes**

1. DC generatrix is not lined correctly.
2. DC generatrix low or high voltage protection.
3. MCE malfunction.
4. Compressor's frequency changes incorrectly.

**Troubleshooting**



## 1.1 DC generatrix detection

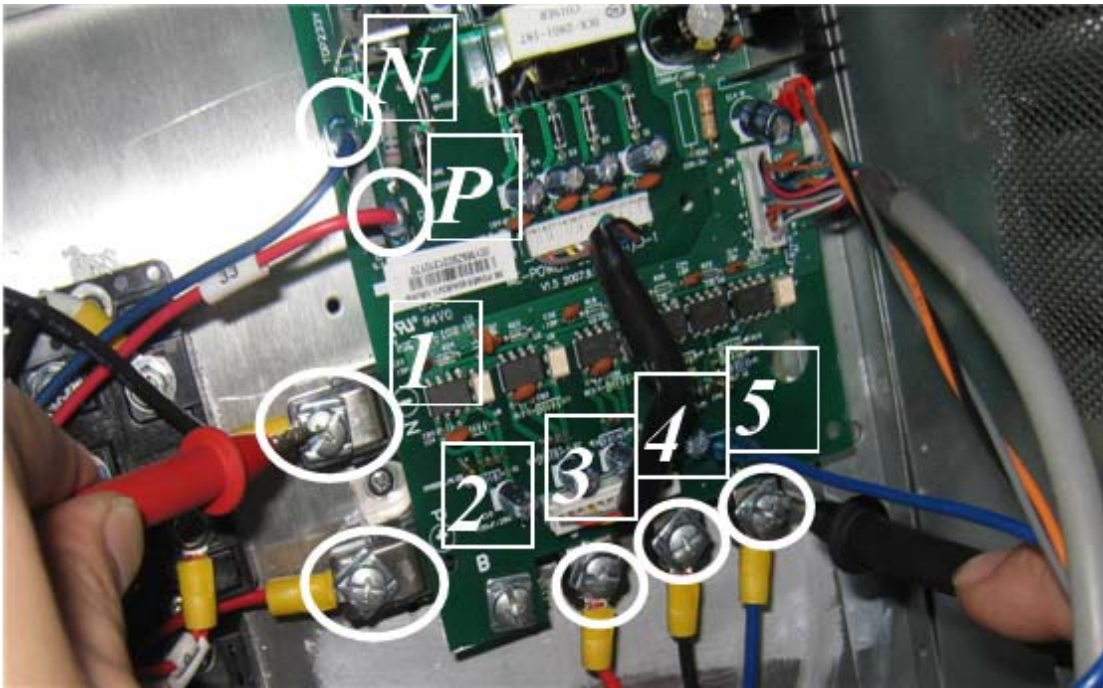


## 1.2 Voltage check of DC generatrix

- 1.2.1 Check the voltage of DC generatrix, which is normal between 510V and 580V. If less, go to next step.
- 1.2.2 Check the rectification circuit. Find out any loose in the circuit. Moreover check the filter board, rectifier stacks. Mind DC and AC switch on the meter while doing this.
- 1.2.3 If none of the above works, replace the main control board.

## 2 Voltage check of module





2.1 The voltage between N and P should be 1.41 times to local power supply.

2.2 The voltage between 1 and 2 should range from 510V to 580V

2.3 The resistance between 1,2,3,4,5 should be infinite. If any of them is about 0, which means the module has already been broken down, we need to replace the module.

### 3 Compressor's characteristics

3.1 Measure the resistance among the compressor's U, V, W respectively. The resistance should range from 0.9 to 5 Ohms and be the same.



**Fig. A**



**Fig. B**

3.2 Measure the resistance between the compressor's U, V, W and GND respectively. The resistance should be more or less mega-Ohms.



Fig. C



Fig. D

3.3 Measure the current of the compressor's U,V,W terminal respectively, which should be more or less the same, by e.g. current flow table clamp. They should be 4A at the frequency of 35 Hertz.

4 P6 appears after the compressor turns on with difficulties

4.1 Check the module according to step 3 first.

4.2 If the module works, make the machine standby for 4 hours with power supply, which can help heating the refrigerant and oil adequately.

4.3 Start the fixed frequency compressor only for 3S to 5S. The great startup pressure could wash the impurity away in the tube.

4.4 If the compressor's frequency climb to 37 Hertz or above in 2S after turning on, then there's something wrong with the compressor. Check the compressor.

4.5 If the compressor's current is normal, the malfunction appears on the control board. Please replace it.

5 The machine is powered on and P6 appears at once



In normal situation:

LED 1: Flash in 1Hz (slowly flash) when standby

LED 1: On when running

LED 2: Off

Phenomenon A

LED 2 red ON

LED 1 green Flashes 8 times and stops for 1S, then repeat.

Error: Inverter module failure

Phenomenon B

LED 2 red ON

LED 1 green Flashes 9 times and stops for 1S, then repeat.

Error: Low voltage protection

Here are 3 circumstances:

- a) The voltage between the two electrolytic capacitors is less than 450V. The AC contactor should be picked up. If not, there's something wrong with the main control board or the PTC resistors, which need to be replaced correspondingly.
- b) Somewhere is loose in the circuit.
- c) The voltage between P and N of CN12 on the main control board should range from 450V to 570V. If the voltage between N terminal and middle terminal of CN12 is 15V while error displays, it means that the main control board fails. Please replace the main control board.

#### Phenomenon C

LED 2 red ON

LED1 Green Flashes 10 times and stops for 1S, then repeat.

Error: High voltage protection

Here are 2 circumstances:

- 6. Three-phase power supply's voltage is more than 440V
- 7. Main control board fails. Please replace it.



## 3.18 "P7": Fixed 1 current protection

Outdoor Unit  
Display

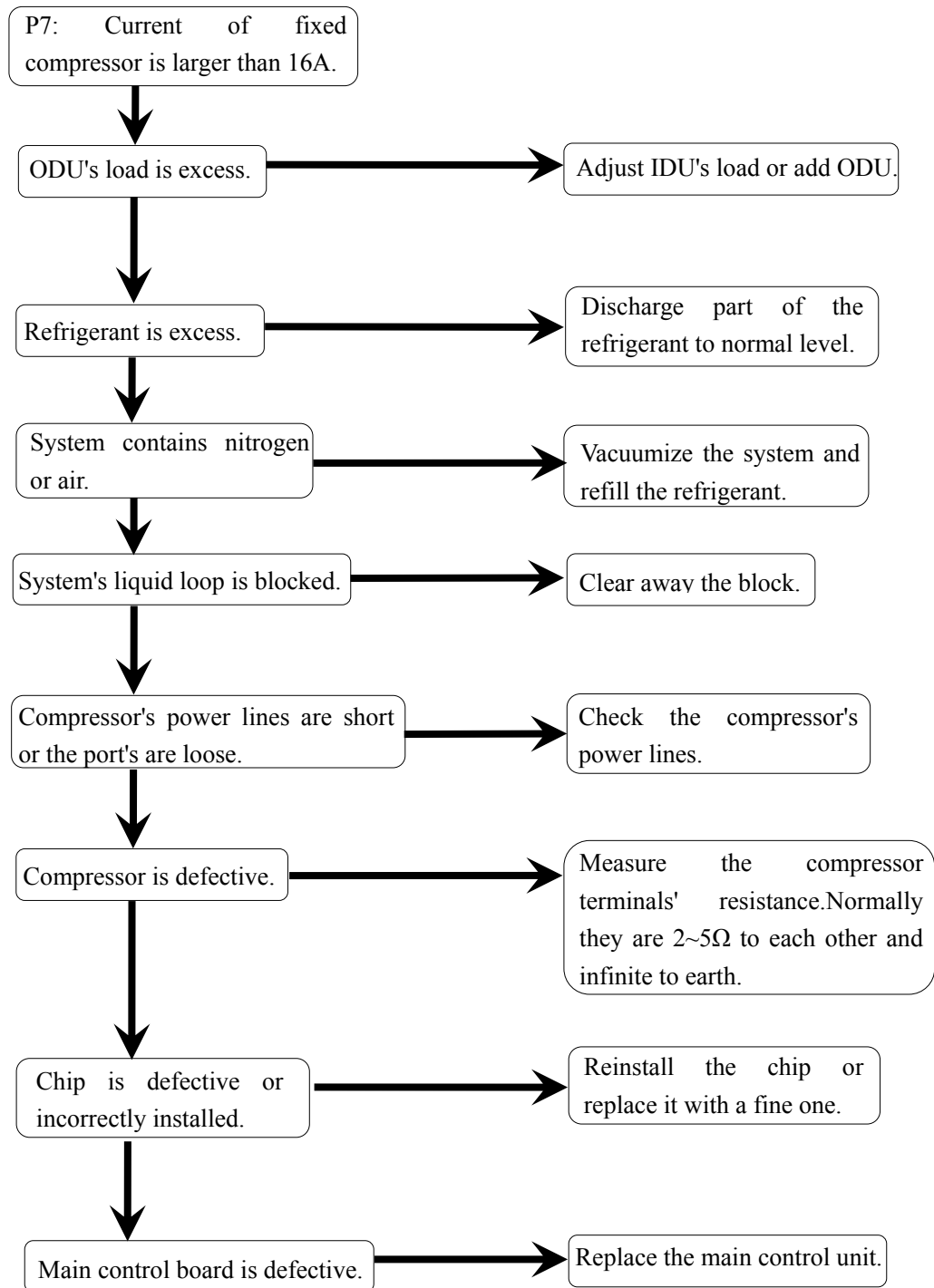
**P7**

Error ODU displays P7.  
Explanation

Supposed Causes

1. Load on ODU is excess.
2. Outdoor heat exchanging is not efficient.
3. Refrigerant is excess.
4. Compressor or its circuit is defective.
5. Control board is defective.

Troubleshooting



## 3.19 "P8": Fixed 2 current protection

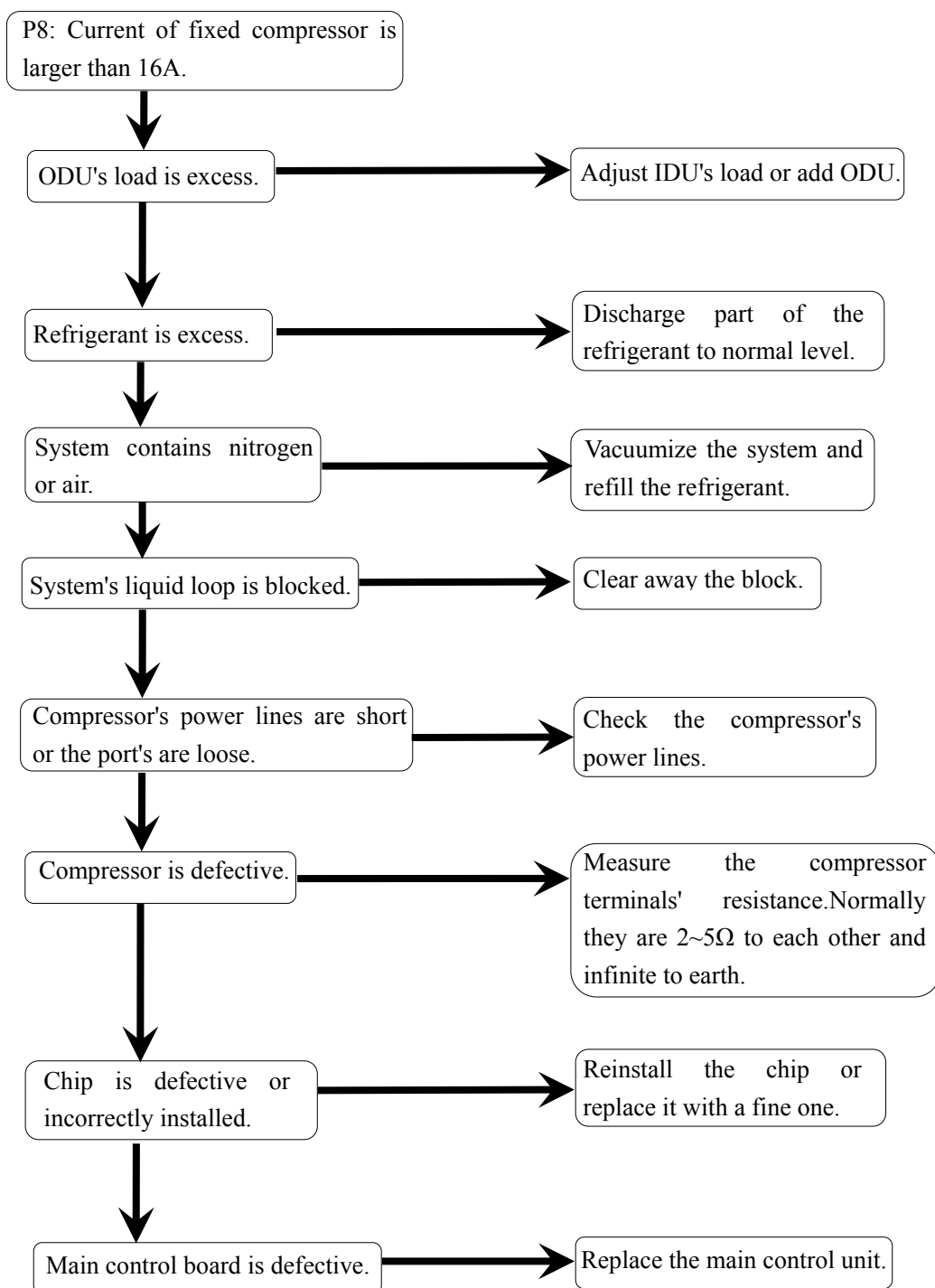
Outdoor Unit  
Display

**P8**

Error ODU displays P8.  
Explanation

Supposed	1. Load on ODU is excess.
Causes	2. Outdoor heat exchanging is not efficient.
	3. Refrigerant is excess.
	4. Compressor or its circuit is defective.
	5. Control board is defective.

Troubleshooting



## 3.20 "P9": Fan module protection

Outdoor Unit  
Display

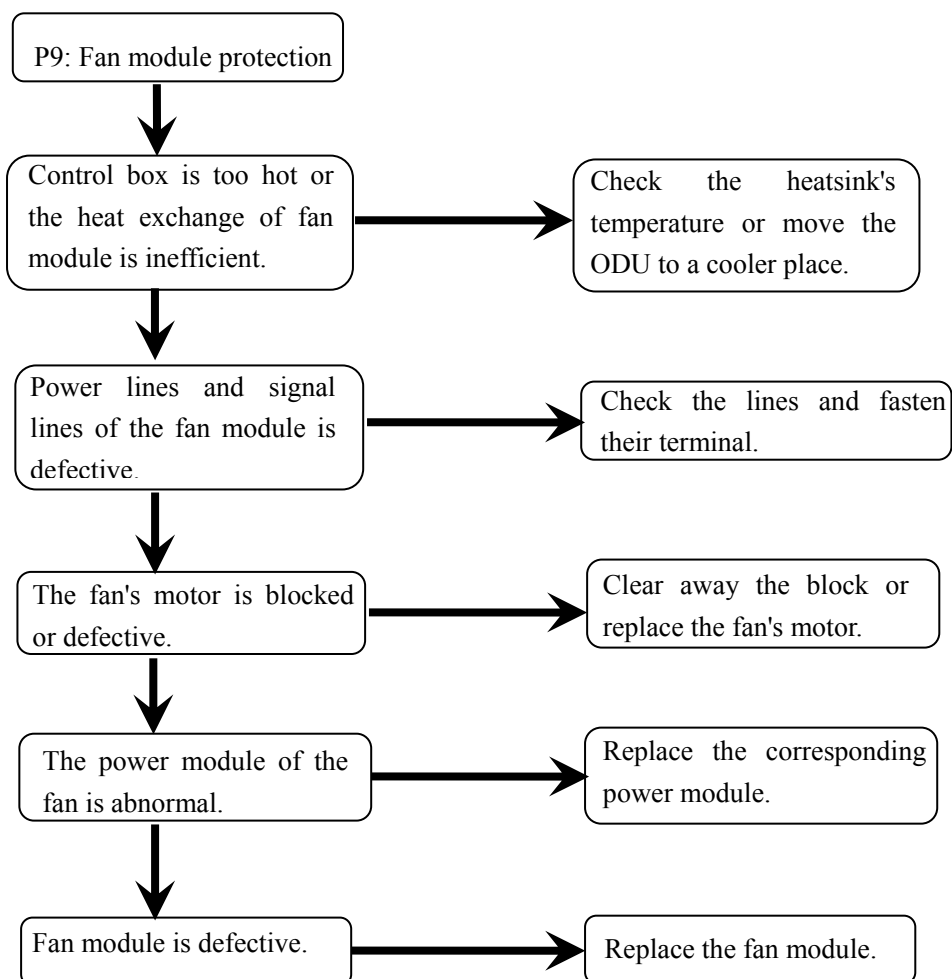
**P9**(V4+)

**Error** ODU displays P9. Only V4+ series system would display this code.  
**Explanation**

**Supposed Causes**

1. Control box is too hot.
2. Fan is blocked or is defective or is not powered correctly.
3. Signal line is loose.
4. Fan module is defective.

### Troubleshooting



Remarks: If P9 occurs 3 times in 30 minutes, system will auto shut down and display H9 malfunction, which can recover only by restarting the machine. At this time, malfunction should be promptly treated to avoid further damage.